AUSTRALIAN CHAETILIIDS (CRUSTACEA: ISOPODA: VALVIFERA): A NEW GENUS, NEW SPECIES AND REMARKS ON THE FAMILY

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Abstract

The family Chaetiliidae (Isopoda) is redefined to include all genera not included in the idoteid subfamily Idoteinae and previously included in its other four subfamilies (Chaetiliinae, Glyptonotinae, Mesidoteinae and Parachiridoteinae). Three Australian genera, *Austrochaetilia* Poore, *Chaetilia* Dana and *Stegidotea* gen. nov., are defined and new species, *C. tasmanica*, *S. pinnata* and *S. scabra*, described.

Introduction

The valviferan isopod family Idoteidae Fabricius, 1798, has been divided at various times into five subfamilies: Idoteinae Dana, 1853; Chaetiliinae Dana, 1853 (= Macrochiridotheinae Nordenstam, 1933); Glyptonotinae Miers, 1881; Mesidoteinae Racovitza & Sevastos, 1910; and Parachiridoteinae Elkaim & Daguerre de Hureaux, 1976. The separation of the Idoteinae from the rest is clear and well-documented by Brusca (1984) in his analysis of the phylogeny, evolution and biogeography of idoteine genera. A simple tabulation of the characters of non-idoteine genera suggested that in fact more than one alternative subfamily is not justified and that this group rates family status as implied by Bowman and Abele (1982).

The non-idoteines, which Brusca called the "glyptonotine-group", are here all included in the Chaetiliidae. The family-group name first applied to these genera was Chaetilidae Dana, 1853, its spelling corrected for the first time by Miers (1881). The group is distinguished by the synapomorphies: head strongly produced laterally, moving eyes to a dorsal position; body broadened and dorsoventrally depressed; and pereopods 1-3 (at least) subchelate or prehensile. The group retains the symplesiomorphies of four free pleonites (in primitive genera), two uropodal rami, and separate penes. A list of genera of the Chaetiliidae was given by Poore (1984). To this list of available names must be added *Idotoeaga* Lockington, 1877, and *Saussureana* Haller, 1879, both probable junior synonyms of *Saduria* Adams (Miers, 1881). Another is added here. Poore (1984) also rediagnosed in detail *Macrochiridothea* Ohlin and *Symmius* Richardson. The name *Macrochiridothea* Ohlin was published in 1907, not 1901 as frequently given.

The initial objective of this paper, to describe new forms from Bass Strait and Tasmania, necessitates some comment on the status of the family but detailed analysis of the relationships between genera is left for some other time. At present many genera are too poorly known to allow for sensible comment. The genera display many convergences which will require a detailed and thorough analysis.

Successive definitions of the subfamily Chaetiliinae (Nordenstam, 1933; Menzies, 1952; Hurley and Murray, 1968; Poore, 1978; Jones and Fenwick, 1978) have become more encompassing, to the point that the Glyptonotinae must be included within it. These two subfamilies are separated from the Mesidoteinae and Parachiridoteinae only on the number of dorsal coxal plates present. However, the reliability of this character in idoteid phylogeny was critically questioned by Brusca and Wallerstein (1979). The division of genera into two groups on the basis of the arrangement of dorsal coxal plates is not straightforward as exemplified by differences between species of *Macrochiridothea* Ohlin. In addition, many parallelisms and convergences result from this dichotomy. For example, in both groups there is a tendency for fusion of pleonites, fusion of maxillipedal palp articles and loss of the trituritive molar process. No character is immediately obvious in supporting this dichotomy.

The Parachiridoteinae was separated from the Mesidoteinae on the basis of natatory pereopods 4 and 5 (Elkaim and Daguerre de Hureaux, 1976). However, this condition is ap-

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proached in *Maoridotea* Jones & Fenwiek and in all other respects *Parachiridotea* Daguerre de Hureaux & Elkaim is a typical chaetiliid. Kussakin (1979, pp. 75-77) briefly discussed the relationships of the idoteid subfamilies and commented on the geographieal distribution of each.

In the following systematic section the Chaetiliidae is redefincd. *Chaetilia*, *Austrochaetilia* and a new genus are diagnosed, and three new species described. The material studied here comes largely from sampling in Bass Strait as part of the Museum of Vietoria's Bass Strait Survey (BSS stations) and is lodged in its collections, previously those of the National Museum of Vietoria (NMV). Small eollections are also in the Australian Muscum, Sydney (AM) and the Tasmanian Museum and Art Gallery, Hobart (TM). In all figures these abbreviations are used: A1, A2, antennae 1 and 2; P1-P7, pereopods 1-7; PL1-PL5, pleopods 1-5; MD, mandible; MP, maxilliped; MX1, MX2, maxillae 1 and 2; U, uropod. Lower case letters indicate figures from different individuals.

Chaetiliidae Dana

Chaetilidae Dana, 1853: 711.
Chaetiliidae.—Miers, 1881: 2.—Bowman & Abele, 1982: 19.
Glyptonotinae Miers, 1881: 9.—Nordenstam, 1933: 103.—Sheppard, 1957: 164.
Mesidoteinae Raeovitza & Sevastos, 1910: 194-9.
Macrochiridotheinae Nordenstam, 1933: 104-5.—Sheppard, 1957: 168-9.
Chaetilinae Menzies, 1962: 96.—Hurley & Murray, 1968: 243.—Jones & Fenwick, 1978: 617-18.—Poore, 1978: 113-4.
Parachiridoteinae Elkaim & Daguerre de Hureaux, 1976: 275-93.

Diagnosis: Head laterally expended, often laterally incised, immersed in first pereonite. Eyes more or less dorsal, if present. Body broadened and dorsoventrally flattened. Pereopods 1-3 at least, and sometimes 1-5, subchelate or prehensile. Penes separate. Uropod with two rami.

Type-genus: *Chaetilia* Dana, 1853.

Austrochaetilia Poore

Austrochaetilia Poore, 1978: 114.—Jones & Fenwick, 1978: 619.

Diagnosis: Head immersed only slightly in pereonite 1, laterally expanded, margins entire. Eyes dorsolateral, weak. Pereonites 5-7 only with eoxal plates distinct dorsally. Pereonite 7 only little narrower than pereonite 6. Pleonites 1-3 completely free, pleonite 1 much narrower than following pleonites, pleonite 4 free only laterally. Pereopods 1-3 prehensile, elongate-ovate article 6 eupped by triangular artieles 4 and 5, first only little longer than others. Pereopods 4-7 ambulatory, pereopod 6 only fraetionally the longest; all pereopods with a dactyl. Mandible with blunt rounded incisor, lacinia mobilis and spine row redueed, molar an elongate flat plate with setae anterolaterally. Maxillipedal palp of 5 articles, about 1.5 times as long as endite, the penultimate artiele proximally eonstricted. Pereopods and antennae ornamented with numerous clubbed setae plus spines on posterior margins of prehensile limbs. Uropods overlapping, enclosing pleopods, but not locking together.

Type-species: *Austrochaetilia capeli* Poore, 1978 (original designation).

Remarks: This diagnosis expands on that presented earlier. In the following remarks dealing with new material of the type-speeies some important eorreetions are made which bear on the generic diagnosis. The genus is monotypic.

Austrochaetilia shares with *Saduriella* Holthuis and *Chiridotea* Harger three free pleonites and pleonite 4 fused mid-dorsally. But in the last two genera the lateral margin of pleonite 4 is short or absent and coxae 2-7 are visible dorsally. *Austrochaetilia* is possibly closest to *Glyptonotus* Eights, which differs in having four free pleonites and possessing a cylindrical molar.

Austrochaetilia capeli Poore

Figure 1, Plate 34a.

Austrochaetilia capeli Poore, 1978: 114-18, figs. 1-4.

Material examined: Vic., 20-30 km off Cape

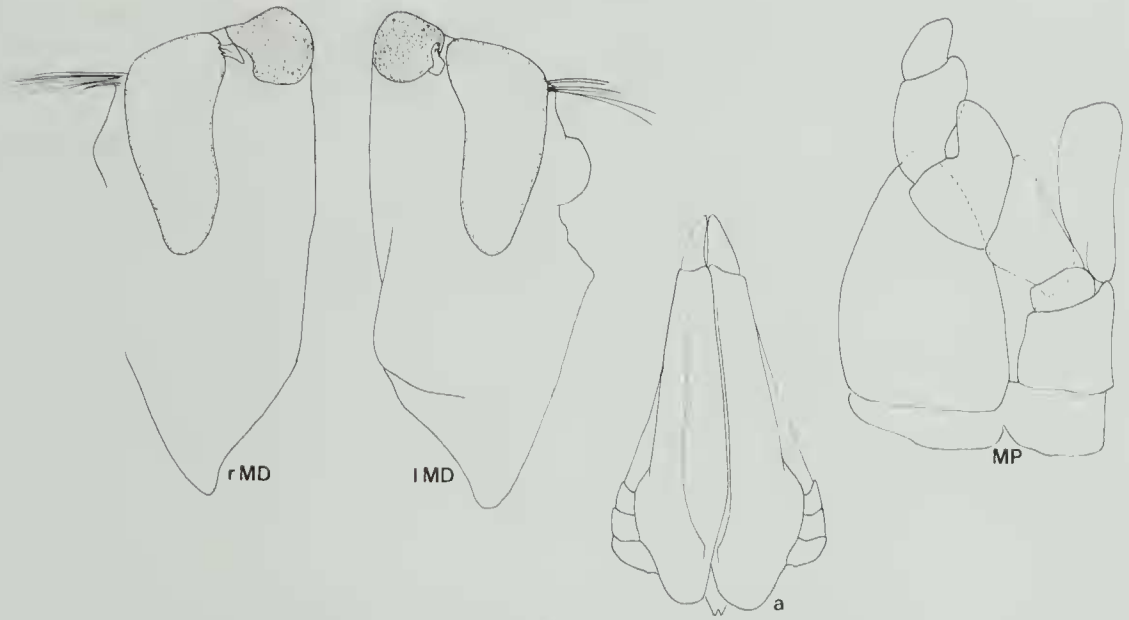

Figure 1. *Austrochaetilia capeli*. Female, 11.4 mm, NMVJ4119. a, ventral view of uropods.

Otway (39°01′-39°08′S., 143°15′-143°36′E.), fine sand, 77-95 m: BSS stn 118 (3 specimens), stn 119(4), stn 120 (6, 3.7-11.4 mm), stn 121(1), NMVJ4116-4120. Flinders, S. W. Fulton and F. E. Grant, no date, NMVJ4121(6, 8.0-12.5 mm). Shoreham, J. A. Kershaw, 30 Mar 1902, NMVJ4122 (1, 11.1 mm).

NSW, Belmont Beach, AMP24062(1), P24063(1).

Distribution: New South Wales and Victorian coast including Port Phillip Bay (not Western Port), sandy sediment, 4-95 m.

Remarks: In the original description two errors were made: an extra suture was figured for antenna 1 and the basal article of the maxillipedal palp was omitted. Re-examination of the mandibles shows that the lacinia mobilis is present. The molar plates appear not to oppose each other and carry laterally a row of molar setae (plate 34a). The mandibles dominate the mouthparts. The lateral sutures separating coxae 2-4 are clearly visible on the ventral surface as illustrated for other genera in this paper.

The new material extends the range of this species both geographically (to NSW) and to greater depth. The species appears not be be widespread in Bass Strait. The sculpture on the material from Flinders is more pronounced than in the type material.

Chaetilia Dana

Chaetilia Dana, 1853: 711.—Menzies, 1962: 103.—Jones & Fenwick, 1978: 619.

Diagnosis: Head laterally expanded or not, margins incised or entire. Eyes dorsolateral, well-developed. Pereonites 5-7 only with coxal plates distinct dorsally. Pereonite 7 much narrower than pereonite 6. Pleonites 1-3 completely free, pleonite 1 much narrower than following pleonites, as wide as pereonite 7, no pleonites partially free. Pereopods 1-3 subchelate, ovate article 6 cupped proximally by triangular articles 4 and 5. Pereopods 4 and 5 prehensile, article 6 elongate, articles 4 and 5 more or less quadrate. Pereopod 6 elongate, reaching beyond end of pleotelson. Pereopod 7 short (about as long as 5), with a minute dactyl. Mandible with toothed incisor, large lacinia mobilis and substantial setal row, molar absent (except for single seta). Maxillipedal palp of 5 articles, about 3 times as long as endite, the penultimate article proximally broad. Pereopods and antennae ornamented with numerous clubbed setae (plus spines on palms

of subchelate limbs). Uropods overlapping in midline, enclosing pleopods except anteriorly.

Type-species: *Chaetilia ovata* Dana, 1853 (original designation).

Remarks: Four species of *Chaetilia* are known: *C. ovata* Dana, 1853; *C. paucidens* Menzies, 1962; *C. argentinae* Bastida & Torti, 1970; and *C. tasmanica* sp. nov. The diagnosis accomodates all species as far as they are known. In only the new species described here is a dactyl figured on pereopod 7. The dactyl is minute and obscured by a circle of setae (plate 34b) so could well be missed by earlier authors. Similar minute dactyls have been noted in species of *Microchiridothea* (Moreira, 1973). It seems probable that Menzies (1962) failed to illustrate the suture between articles 2 and 3 of the maxillipedal palp and the limb he called the "third peraeopod" is in fact the fourth. *Chaetilia paucidens* is the only species in which lateral extensions of the head are not visible. This feature does vary with age in *Chiridotea* (Watling and Maurer, 1975) and otherwise the species is consistent with others in the genus.

Chaetilia differs from all other chaetiliid genera in possession of five subchelate or prehensile limbs, the elongate sixth pereopod and very short seventh pereopod. In many respects (head, coxae, pleon, mandible) *Chaetilia* resembles *Macrochiridothea* which differs in having pereopod 1 much more developed than 2 and 3 and pereopods 4-7 ambulatory and similar.

Chaetilia tasmanica sp. nov.

Figures 2-5, Plate 34b, c

Material examined: 7 males, 10.6-12.6 mm; 14 ovigerous females, 15.7-17.6 mm; 9 juveniles, 6.5-15.8 mm; plus numerous unsorted specimens.

Holotype: ovigerous female, 16.8 mm, NMVJ1423 (with 4 slides), Tas., Convict Beach, near Southport (43°27'S., 146°58'E.), intertidal sand beach, A. McGifford, 18 Mar 1981.

Paratypes: Tas., type locality, NMVJ1424 (1 male), NMVJ1425 (7 females), NMVJ1426 (4 males), NMVJ1427 (15 juveniles), NMVJ1428 (140 specimens), TMG2775-2777(12), AMP33877-33879(12).

Other material: Vic., Phillip Is., Woolamai Beach, 21 Dec 1968, NMVJ4113(1).

Description: Body twice as long as greatest width, flattened and without prominent dorsal sculpture. Head with concave frontal margin bearing prominent rostrum; anterior lateral expansion of head acute, setiferous; posterior lateral expansion acute, much smaller. Eye with major dorsal component and minor ventrolateral component directed ventrally through head incision. Pereonites with slight mid-dorsal projections. Coxae 5 and 6 broad plates with bluntly rounded apices, coxa 7 much smaller, not reaching lateral margin. Pleon almost half total body length; pleonite 1 as narrow as pereonite 7, with a mid-ventral semicircular keel bearing about 12 forwardly directed strong setae; epimera of pleonites 2 and 3 faintly convex; pleotelson apically acute and setose.

Antenna 1 reaching posterior margin of pereonite 1; peduncle of stout article 1, more elongate articles 2 and 3; flagellum 0.6 length of last article of peduncle, of 2 articles both with setae and aesthetascs, the first with serrate anterior margin, the second minute. Antenna 2 reaching midway along last article of peduncle of antenna 1; peduncle article 4 the broadest; flagellum of 9 small articles, about as long as last article of peduncle.

Mandible (plate 34c) with toothed calcified incisor; lacinia mobilis asymmetrical, with prominent teeth on left, fine denticles on right; maximum of about 13 setae in setal row; molar absent except for single dorso-anterior long seta near setal row. Maxilla 1 with 11 setae on outer plate, 2 on inner plate. Maxilla 2 notable for a single elongate complex seta on the innermost plate between 3 spines posteriorly and 8 complex setae anteriorly. Maxillipedal endite reaching to distal margin of palp article 2, with stout curved coupling hook and 4 terminal setae; palp articles not lobed medially, the whole elongate-ovate, article 3 the broadest, article 4 the longest, setae only medially; epipod with broad base, subquadrate.

Pereopods 1-3 similar in form, the second slightly larger than either 1 or 3. Articles 4 and 5 each with convex posterior margin bearing

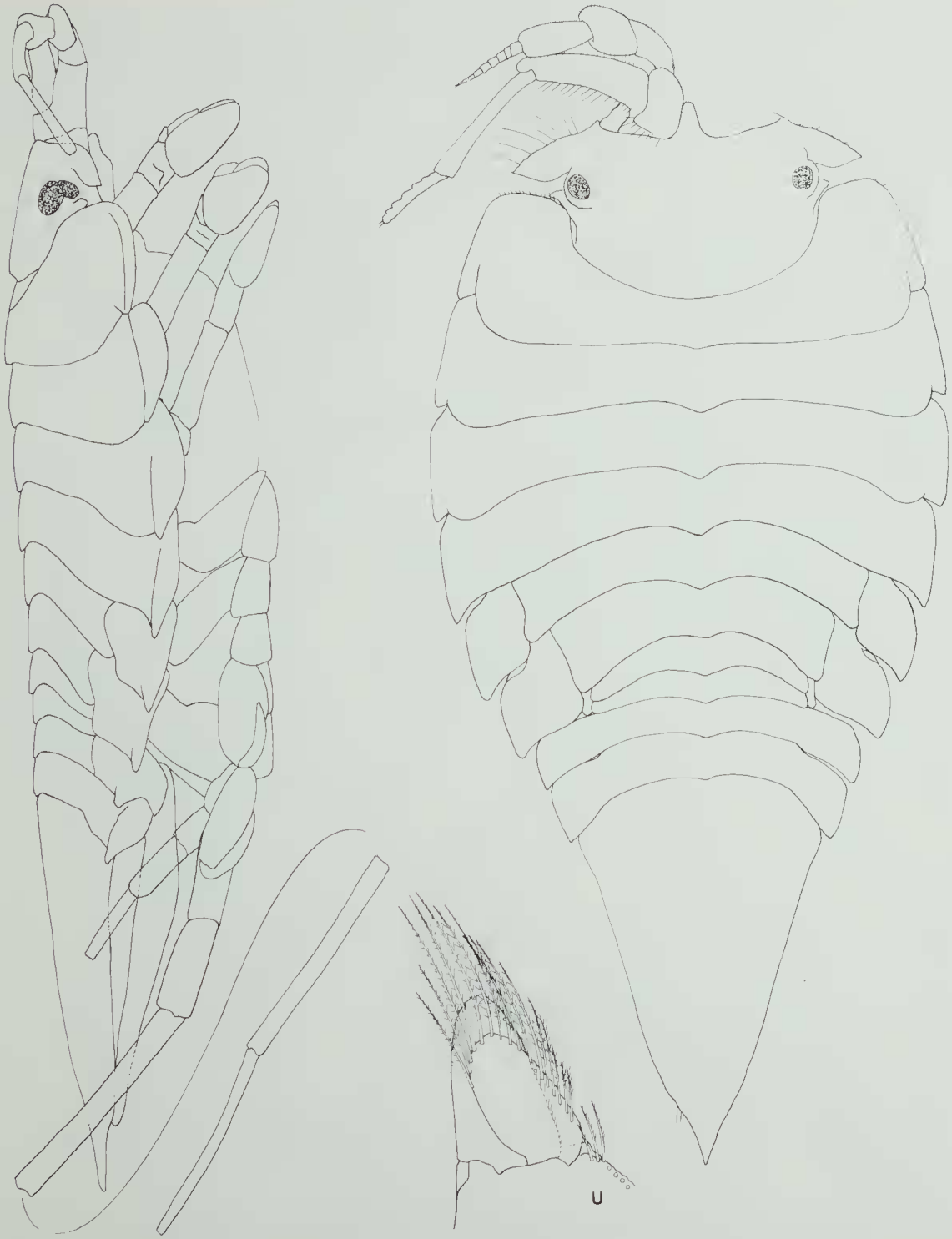

Figure 2. *Chaetilia tasmanica*. Female holotype.

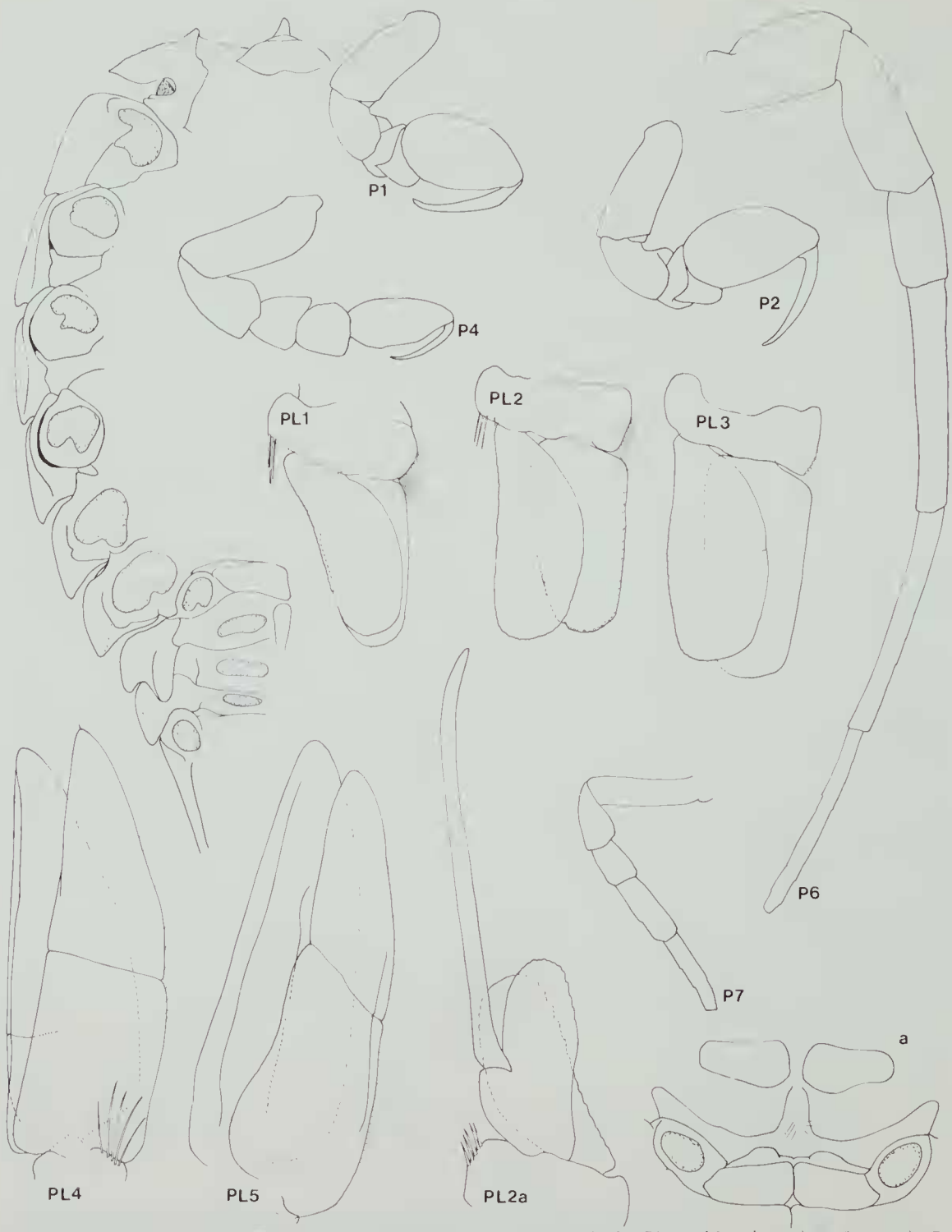

Figure 3. *Chaetilia tasmanica*. Female holotype. a, male, 11.1 mm, NMVJ4124 (Pleopod 2 and sternites of pereonite 7 and pleonite 1). Pereopods to same scale as ventral view and fig. 2.

Figure 4. *Chaetilia tasmanica*. Female holotype. a, typical seta from article 4 of pereopod 7. b, dactyl of pereopod 6.

Figure 5. *Chaetilia tasmanica*. Female holotype.

short setae, free distal lobe of article 5 with 2 spines; article 6 ovate, a strong spine at the base of the cutting edge, short setae along it and longer setae on distal half of anterior margin. Pereopods 4 and 5 similar in form, pereopod 5 a little more elongate; article 2-5 with marginal setae plus transverse rows laterally; article 6 with a step proximally and both short setae and spines along both sides of cutting edge; article 7 reaching back only to step in palm. Pereopod 6 as long as total body length, all articles elongate and setiferous. Pereopod 7 about one-third as long as pereopod 6, dactyl minute and bearing terminal seta (plate 34b); articles 2-6 with typical marginal setae but article 6 with additional toothed setae, especially distally (plate 34b).

Pleopods 1-3 with several medial spines on peduncle; rami setiferous. Pleopod 4 larger; exopod of 2 articles, with few short marginal setae, and terminal seta; endopod with partial

suture. Pleopod 5 similar but endopod without suture, exopod without terminal seta.

Uropod not reaching to end of pleotelson; peduncle fitting anteriorly into ventral slot on pleonite 2, outer ramus 0.8 length of inner, both rami ovate, with marginal plumose setae.

Colour in alcohol. Often reddish brown with black spots dorsally and on pereopods 1-6 and uropods.

Male: Differs from juvenile and female only in possession of very short penes and appendix masculina which reaches almost to tip of pleotelson.

Etymology: For the Australian state, Tasmania.

Distribution: Southern, western, eastern coasts of Tasmania, Victoria; sandy beaches.

Remarks: *Chaetilia tasmanica* differs from *C. argentina* in the less elongate antennae and pereopod 6, and from *C. paucidens* in the more pointed pleotelson. In a comprehensive sampling programme for this species McGifford (1981) determined its geographical and ecological distribution. He concluded that the species was confined to semi-exposed beaches all around Tasmania except in the north. Specimens were most abundant at the surface of the sand at mid-low tide levels.

Stegidotea gen. nov.

Diagnosis: Head slightly or moderately laterally expanded, margin not incised. Eyes absent. Pereonites 5-7 only with coxal plates distinct dorsally. Pereonite 7 only slightly narrower than pereonite 6. Pleonite 1 free but not visible laterally; pleonite 2 completely free; pleonites 3 and 4 free laterally only. Pereopods 1-3 prehensile, with cylindrical sixth article cupped proximally by triangular article 5; first larger than others. Pereopods 4-7 ambulatory, pereopod 6 only fractionally the longest. Mandible with toothed incisor, large lacinia mobilis and short setal row; molar prominent, cylindrical, with basal setae. Maxillipedal palp of 5 articles, about 3 times as long as endite, the penultimate article proximally broad. Pereopods and antennae ornamented with few spines (plus numerous minute sigmoid-setae). Uropods not overlapping, but meeting tightly in midline, enclosing pleopods almost fully.

Type-species: *Stegidotea pinnata* sp. nov.

Etymology: From *stegos* (Greek), a cover, and *Idotea* (type-genus of the family), alluding to the similarity between the type-species and the dinosaur *Stegosaurus*.

Remarks: *Stegidotea* contains two species, both described new here from Bass Strait. In addition to the characters given in the diagnosis several features are shared by the two species. The "stridulatory" ridges across the exopod of pleopod 1 is a character apparently confined to this genus; their function can only be guessed at. The pattern of dorsal sculpture is consistent, only its degree of development differing. The spination of the pereopods and their rectangular-sectioned bases are distinguishing features. The same is true of the uropodal rami, the form of which differs from that in other genera. Another notable minor character is the presence of spines on the fifth article of antenna 2; their form is typical of spines more commonly found on percopods of other isopods.

Stegidotea most resembles *Glyptonotus* Eights except in having only two (rather than four free pleonites, having toothed (rather than rounded) incisor, and in unequal uropodal rami.

Stegidotea pinnata sp. nov.

Figures 6-9, Plate 34d

Material examined: 3 males, 5.3 mm; 10 juveniles, 4.1-5.3 mm; 5 mancas, 2.8-3.8 mm.

Holotype: juvenile, 4.3 mm, NMVJ4144 (with 3 slides), Bass Strait, east of Flinders Is. (39°44.8′S., 148°40.6′E.), fine sand-mud, 124 m, epibenthic sled, 14 Nov 1981 (BSS stn 167).

Paratypes: Bass Strait, type locality, NMVJ4146 (7 specimens); type locality, S-M grab, NMVJ4147(1). Bass Strait, near eastern slope (38°52.6′S., 148°25.2′E.), muddy sand, 140 m, epibenthic sled, 15 Nov 1981 (BSS stn 170), NMVJ4145 (1 male), NMVJ4148(6).

Other material: Bass Strait, off Cape Otway (39°05′S., 143°09′E.), 47 m, pipe dredge, 8 Oct 1980 (BSS stn 58), NMVJ8563(1). Bass Strait, western slope near King Island (40°06′S., 143°18′E.), 139 m, S-M grab, NMVJ8564(1).

Figure 6. *Stegidotea pinnata*. Juvenile holotype. (Ventral view shown with right antennae, mouthparts, pereopods, pleopods and uropod removed). a, locking catch at anteroventral margins of uropod pair.

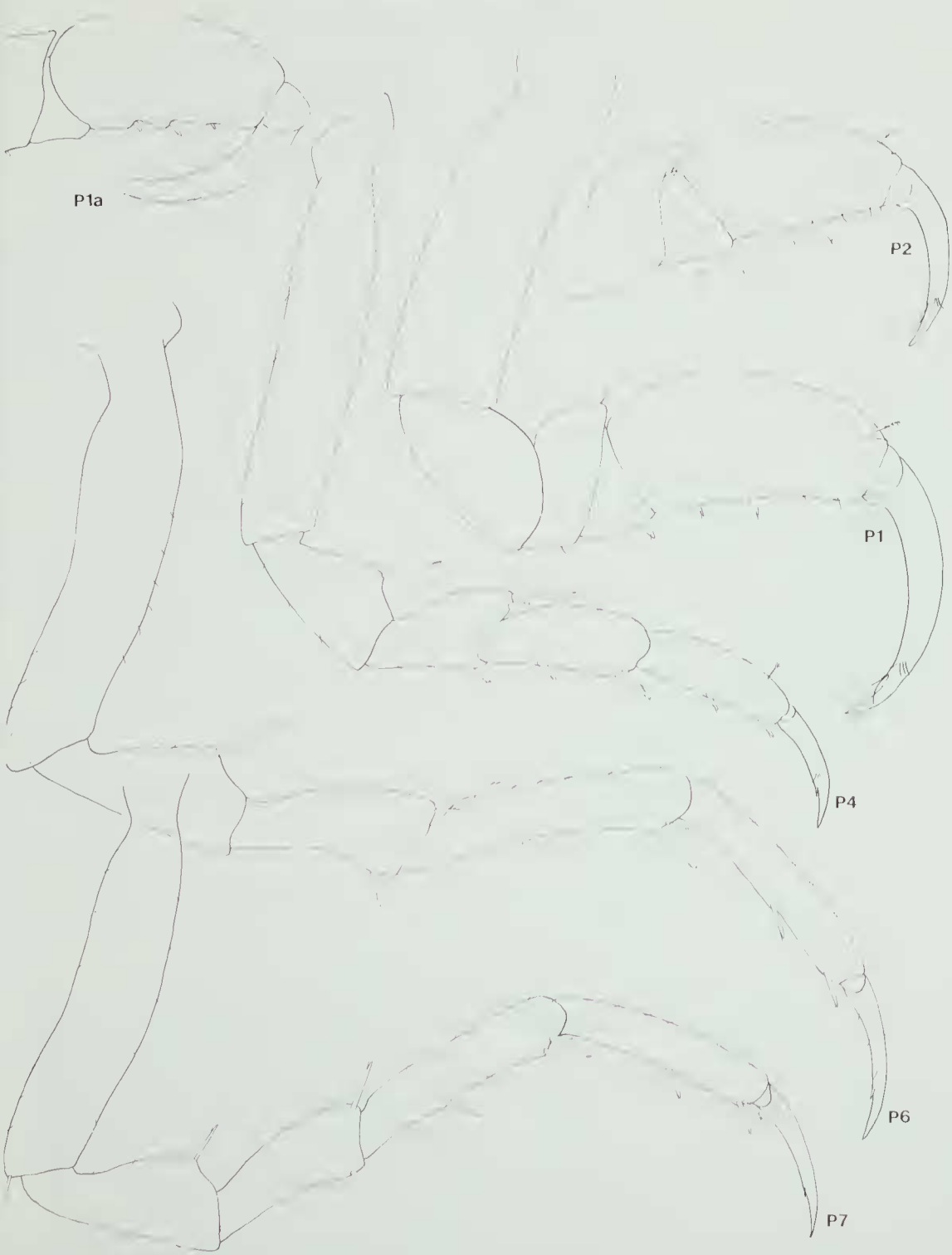

Figure 7. *Stegidotea pinnata*. Juvenile holotype. a, male paratype, 5.3 mm, NMVJ4145 (pereopod 1).

Figure 8. *Stegidotea pinnata*. Juvenile holotype, a, b, c, inner, middle and outer rami of maxilla 1. d, male paratype, 5.3 mm, NMVJ4145 (sternites of pereonite 7 and pleonite 1 with penes).

Tas., east of Maria Island (42°37′S., 148°20′E.), 102 m, epibenthic sled, 9 Oct 1984 (BSS stn 221), NMVJ10924(3).

WA, North-west shelf, 20°20.8′S., 115°58.9′E., 42 m, epibenthic sled, 9 June 1983, NMVJ7765(1), J7766(1).

Description: Female. Body 1.8 times as long as greatest width, dorsoventrally quite convex; pleonal cavity enclosed by uropods dominates the posterior half in lateral view. Integument without any fine surface sculpture dorsally but uropods have reticulate patterning. Head with concave frontal margin with small ventral rostrum; lateral expansion of head triangular; an oblique curved lateral ridge connects with frontal margin; top of head faintly rugose. Pereonites 1-7 with prominent mid-dorsal backwardly-curved carinae; smaller lateral carinae on pereonites 1-6. Coxae 5-7 rectangular plates with more or less square apices, coxa 7 shorter than others. Pleon about 0.45 total body length, with 2 mid-dorsal long carinae posterior to complete sutures; pleonite

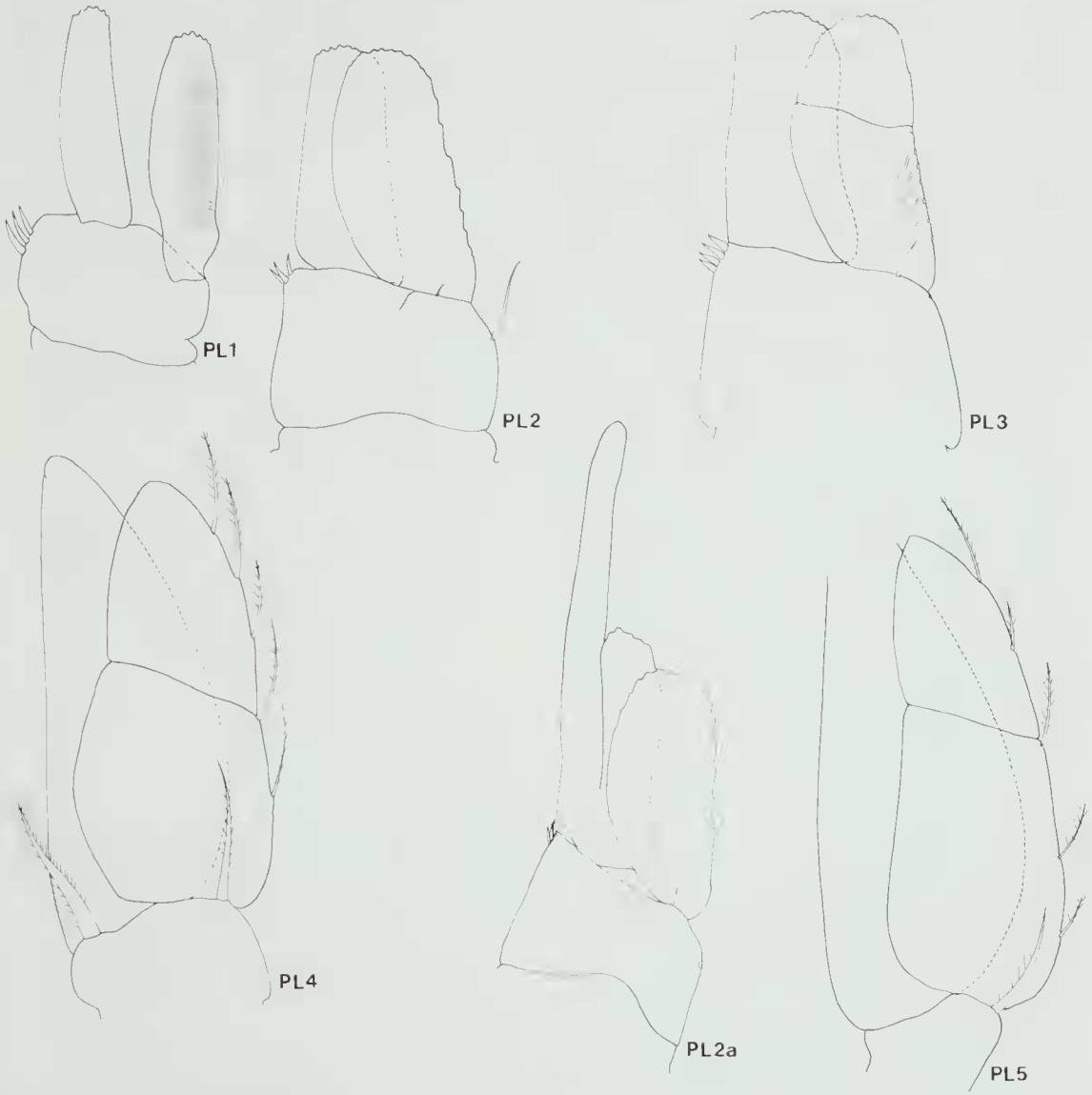

Figure 9. *Stegidotea pinnata*. Juvenile holotype. a, male paratype, 5.3 mm, NMVJ4145 (pleopod 2). Pleopods 1-3 shown without setae.

1 narrow, unarmed, free; pleonal epimera 2-4 diverging markedly such that base of pleotelson is noticeably narrower than pleonite 4; pleotelson apically rounded.

Antenna 1 reaching as far as side of head, to end of antenna 2 peduncle; peduncle article 3 the longest, with only minute setae; flagellum half length of last article of peduncle, of 2 articles, the second narrow and minute, both with terminal aesthetascs and setae. Antenna 2 reaching just beyond lateral margin of head; peduncle article 5 longer than 3 and 4, with 2 short ventral spines near anterior margin; flagellum as long as last article of peduncle, first article elongate-ovate, flattened, second and third much shorter.

Mandible with toothed incisor; lacinia mobilis asymmetrical, left as large as the incisor

and with prominent broad teeth, right much smaller and with rows of fine teeth and denticles (plate 34d); 3 complex spines in spine row; molar a cylindrical process on anterior margin, surrounded by fine spines, bearing 1 or 2 long basal setae proximally. Maxilla 1 with 11 setae on outer plate, 2 on inner plate. Maxilla 2 inner ramus bearing 6 apical setae and 3 shorter setae. Maxillipedal endite reaching just beyond distal margin of palp article 2, with straight coupling hook and 6 apical setae plus 1 subapical seta; palp ovate, articles 3 lobed medially, articles 3 and 4 the broadest; setae only medially; epipod semi-elliptical.

Pereopods 1-3 similar in form, first the longest, second only slightly larger than the third. Pereopod 1 article 5 with single posterior spine, article 6 cylindrical, palm straight, with 2 spines. Pereopods 2 and 3 with 1 spine anteriorly on article 3, 2 posterior spines on article 5 and 3 on article 6. Pereopods 4-7 similar, ambulatory, the sixth the longest (little more than half total body length); articles 4-6 each armed posteriorly with 1-3 spines, article 3 with spine on an anterior lobe, article 4 with 1 or 2 spines on disto-anterior margin.

Pleopod 1 with 3 medial spines on peduncle, rami narrow and not overlapping, endopod with 5 terminal long plumose setae; exopod with 5 terminal setae and 30 transverse closely spaced "stridulatory" ridges on posterior surface. Pleopod 2 with overlapping rami 1.5 times as long as peduncle, endopod setose terminally, exopod marginally setose except along proximal part of medial margin. Pleopod 3 peduncle longer than on pleopod 2, setal distribution similar, exopod with 2 articles. Pleopods 4 and 5 similar, peduncle with plumose setae; endopod without setae; exopod with 2 articles and 5 setae laterally.

Uropod peduncles locked by small catch anteriorly to form pleonal cavity (see figure), each with single terminal medial seta; inner ramus narrow, reaching 0.8 length of outer ramus, with 5 very short setae on oblique distal margin.

Colour in alcohol. White or dull brown.

Male: No gross morphological differences from juvenile except that palm of pereopod 1 has small projections at the base of each spine. Penes are paired and well-spaced. Appendix masculina almost twice as long as pleopod 2 endopod and almost as broad.

Etymology: From *pinna* (Latin), a fin, so named because of the species' dorsal ornamentation.

Distribution: Bass Strait and east coast of Tasmania, muddy sand, 47-140 m, and North-west shelf.

Remarks: *Stegidotea pinnata* is immedately distinguished from its cogenor in Bass Strait by the prominent dorsal ornamentation and the diverging pleonal epimera. The species has a more restricted geographical distribution in Bass Strait than *S. scabra* and occurs on more muddy sediments at greater depths.

The occurrence of a temperate Australian isopod in tropical benthos is not anticipated. Current research on other families has not found a similar distributional record.

Stegidotea scabra sp. nov.

Figures 10-12, Plate 34e, f

Material examined: 2 males, 5.6 mm; 1 ovigerous female, 5.2 mm; 8 juveniles, 3.0-5.3 mm.

Holotype: ovigerous female, 5.2 mm, NMVJ4152 (with 3 slides), Vic., north-eastern Bass Strait (38°54.3'S., 147°13.4'E.), coarse shell, 58 m, S-M grab (BSS stn 176).

Paratypes: Vic., off Warrnambool (38°49.5'S., 142°35.4'E.) sand and coarse shell, 89 m, rock dredge (BSS stn 190), NMVJ4153 (2 males). SE. of Cape Otway (39°16.7'S., 143°06.7'E.), sandy shell, 95 m, rock dredge (BSS stn 193), NMVJ4154(3). North-eastern Bass Strait (39°16.8'S., 147°33.2'E.) muddy shell, 57 m, epibenthic sled (BSS stn 174) NMVJ4157(2); (39°05.8'S., 147°26.2'E.), coarse shell, 59 m, epibenthic sled (BSS stn 175), NMVJ4156(1). Off north-eastern Tasmania (40°40.7'S., 148°36.9'E.), muddy sediment, 67 m, epibenthic sled (BSS stn 164), NMVJ4155(2).

Description: *Female*. Body 2.0 times as long as greatest width, dorsoventrally convex; pleonal cavity enclosed by uropods dominates posterior half in lateral view. Integument with reticulate raised pattern confined on pereonites to

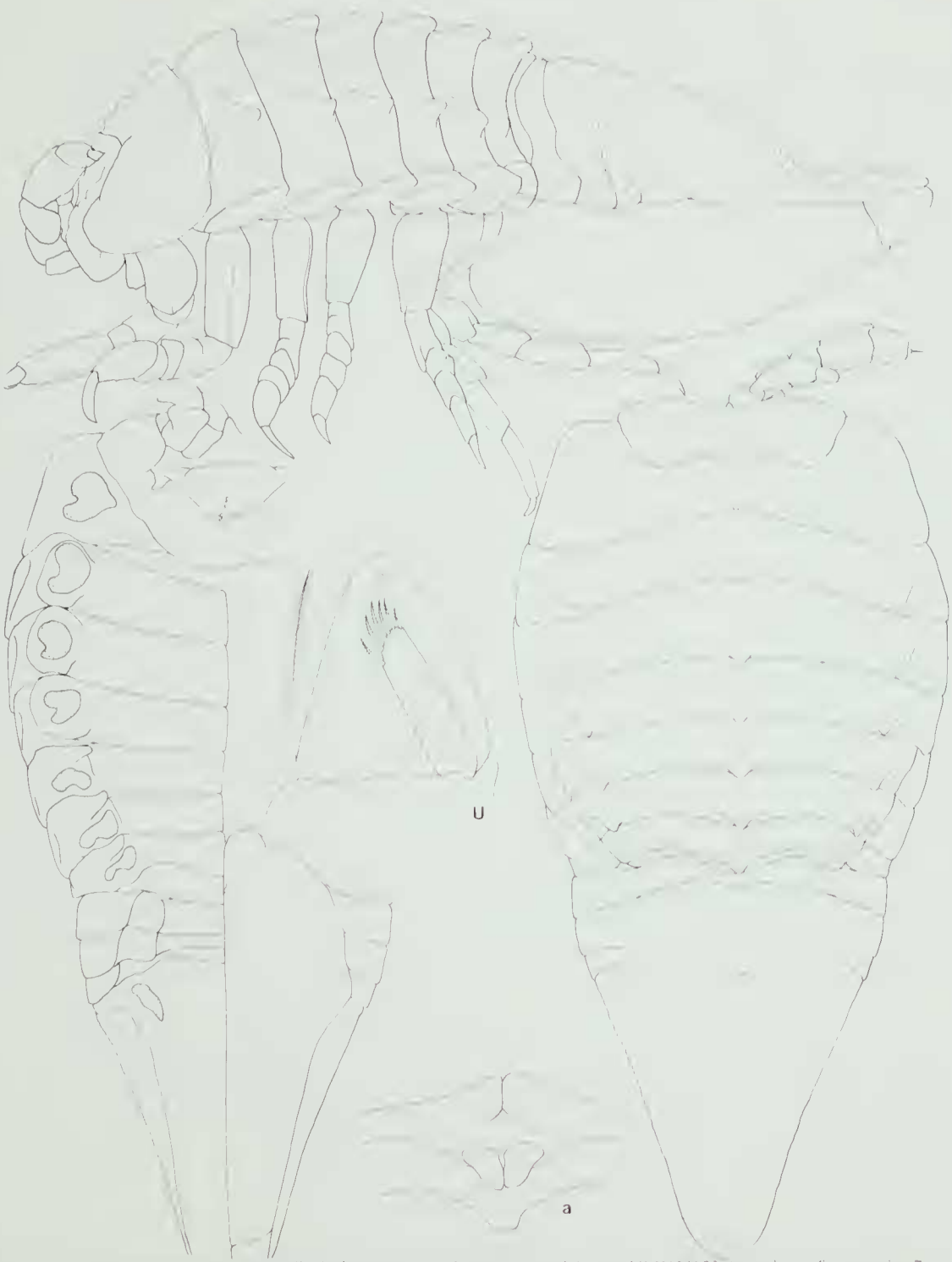

Figure 10. *Stegidotea scabra*. Juvenile holotype. a, male paratype, 4.1 mm NMVI4153 (sternites of pereonite 7 and pleonite 1 with penes).

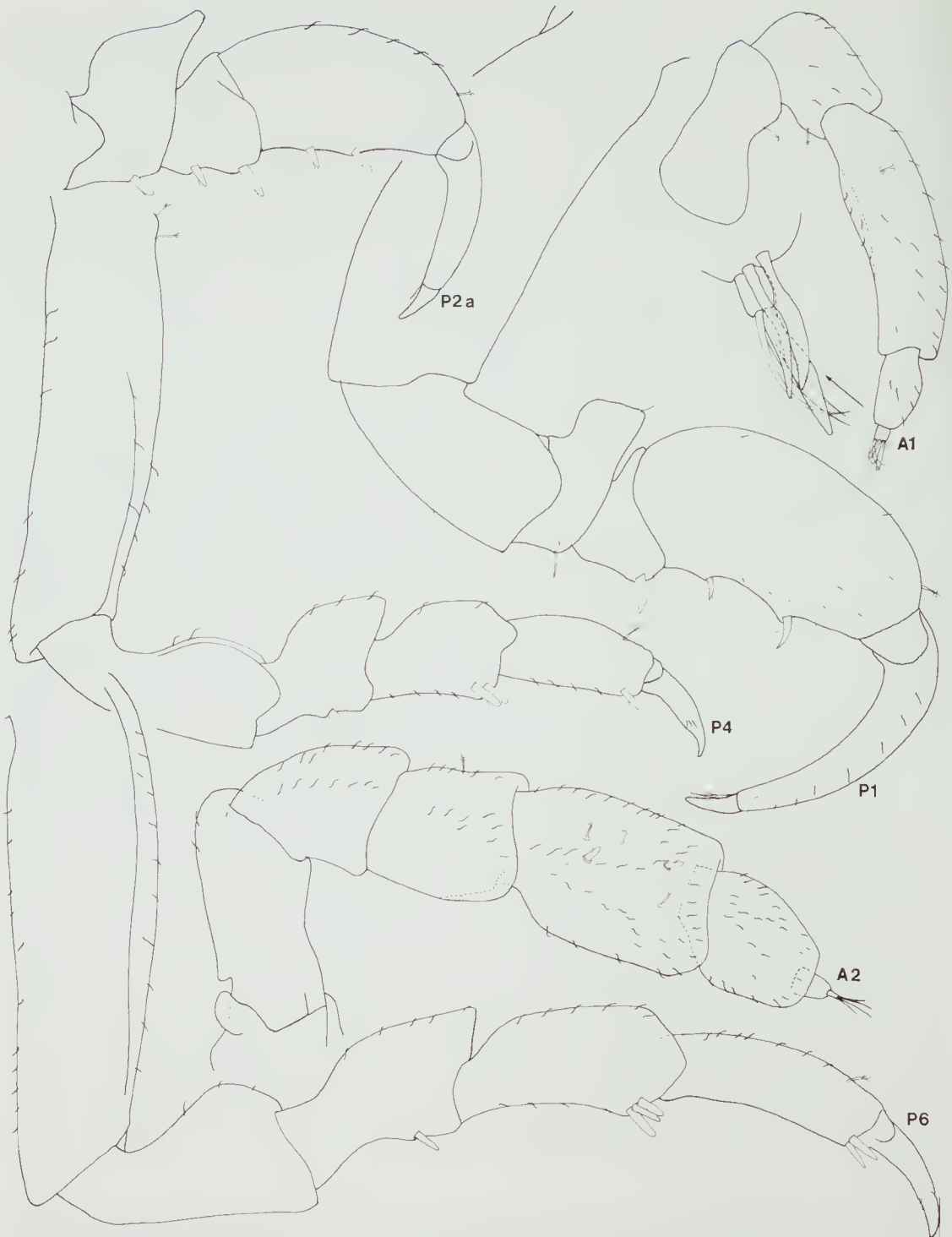

Figure 11. *Stegidotea scabra*. Juvenile holotype. a, male paratype, 4.1 mm NMVJ4153 (pereopod 2).

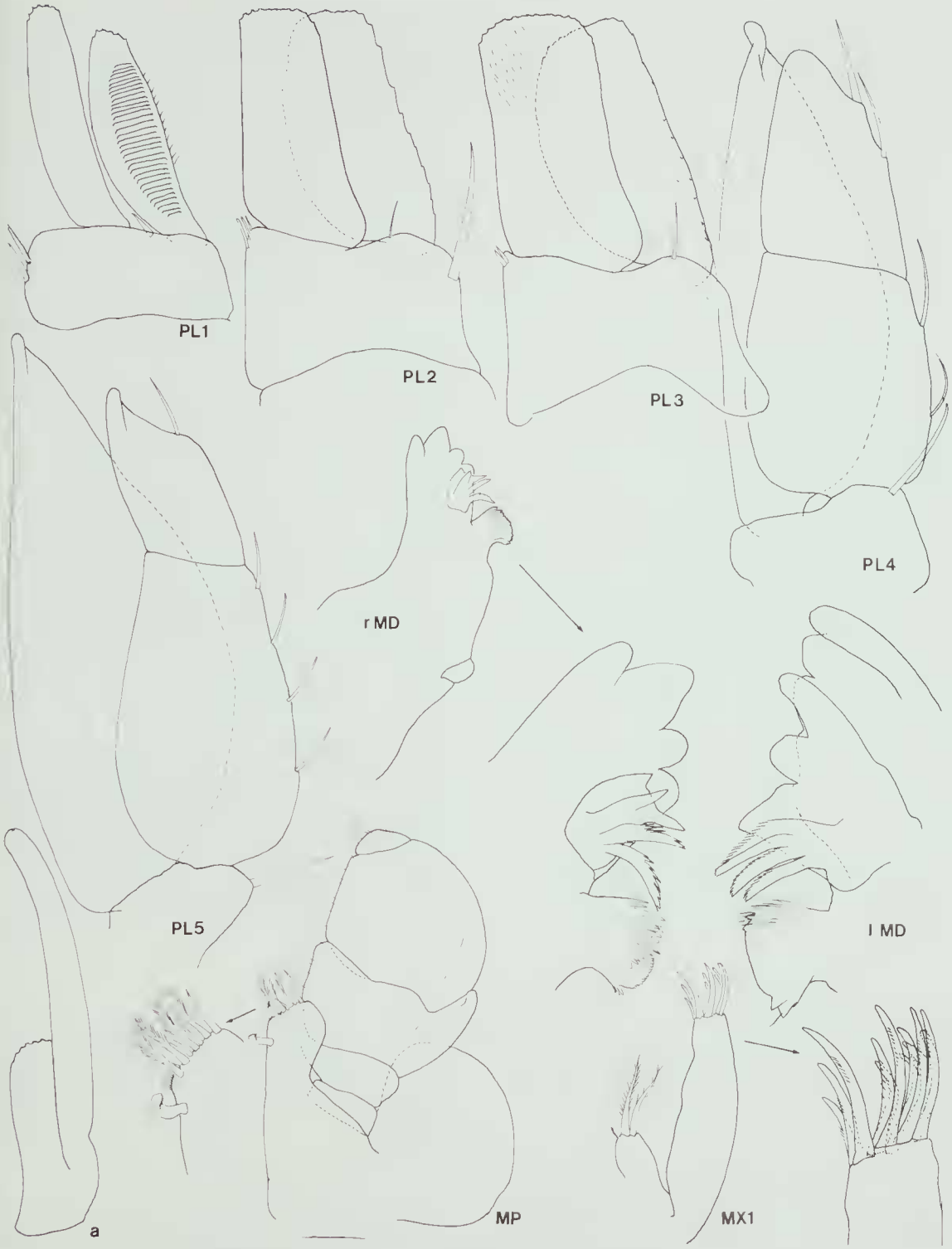

Figure 12. *Stegidotea scabra*. Juvenile holotype. a, male paratype, 4.1 mm NMVJ4153 (pleopod 2 endopod).

transverse ridges; the inter-ridge spaces extremely finely and regularly denticulate. Head with concave frontal margin with very small ventral rostrum; lateral expansion of head triangular but obscured from dorsal view by anterior part of pereonite 1; top of head rugose and irregularly ridged. Pereonites 1-7 with low mid-dorsal broadly-based carinae; smaller lateral carinae on pereonites 2-6; pereonite 1 dorsally rugose, especially laterally, others with small tubercles on transverse ridges between carinae. Coxae 5-7 rectangular plates with more or less square apices, lateral convex margins aligned. Pleon about 0.45 total body length, mid-dorsally domed on anterior two-thirds, with a slight step posterior to free pleonites, otherwise irregularly sculptured; pleonite 1 short, narrow, free; pleonite 2 free; pleonal epimera 2-4 converging slightly such that margin of whole pleotelson is a continuous curve; pleotelson apically rounded.

Antenna 1 reaching near to lateral margin of head, not to end of peduncle of antenna 2; peduncle article 3 narrow, about as long as first 2 together; flagellum one-third length of last article of peduncle, of 2 articles, the second minute, both bearing terminal aesthetases. Antenna 2 reaching to lateral margin of pereonite 1; peduncle article 5 the longest,with 2 ventral spines; flagellum almost as long as peduncle article 5, partly embedded in it, first article broadly ovate, second and third much shorter.

Mandible with toothed incisor; lacinia mobilis asymmetrical, left as wide as incisor and with 3 broad teeth (pl. 34f, g), right less than half width of incisor and with rows of denticles and fine teeth (pl 34e); 2-3 complex spines in spine row; molar a cylindrical toothed process bearing numerous sharp teeth and 2 basal setae. Maxillae typical. Maxillipedal endite reaching midpoint of third palp article, with 1 coupling hook and 8 apical setae; palp ovate, article 3 lobed medially and enclosing article 4 laterally, articles 3 and 4 the broadest; setae only medially; epipod semi-ellipitical.

Pereopods 1-3 similar in form, first the largest, second only slightly longer than third. Pereopod 1 article 5 with single posterior spine; article 6 cylindrical, palm with 2 spines on small projections. Pereopods 2 and 3 with 1 spine on article 4, 2 each on articles 5 and 6. Pereopods 4-7 similar, ambulatory, sixth the largest; article 4 with 1 spine near midpoint of posterior margin; articles 5 and 6 with 1-3 spines at distoposterior angle.

Pleopod 1 with 2 medial spines on peduncle, rami narrow and not overlapping; endopod with 6 terminal long plumose setae; exopod with 5 terminal setae and about 30 transverse closely spaced "stridulatory" ridges on the posterior surface. Pleopod 2 with overlapping rami, 1.5 times as long as peduncle; endopod setose terminally; exopod setose except along proximal part of medial margin. Pleopod 3 setal distribution similar to that of pleopod 2. Pleopods 4 and 5 similar, peduncle with terminal plumose seta; endopod without setae; exopod of 2 articles, with 4-5 setae laterally.

Uropod peduncle locked by small catch anteriorly to form pleonal cavity, sculptured with reticulate pattern and denticles similar to that occurring dorsally; peduncle with a terminal plumose seta; inner ramus subtriangular, non-setose (except for 2 brush-setae externally); outer ramus narrow; parallel-sided, 0.8 length of outer ramus, with 6 plumose setae on the oblique convex terminal margin.

Colour in alcohol, White.

Male: No marked morphological differences from the female and juvenile. Penes are paired and well spaced. Appendix masculina a little more than twice as long as pleopod 2 endopod and almost as broad.

Colour in alcohol, White.

Etymology: From *scabrus* (Latin) rough, referring to the species' sculpture.

Distribution: Bass Strait, sandy sediment, 58-95 m.

Remarks: *Stegidotea scabra* is distinguished from *S. pinnata* by the less pronounced dorsal crests, its surface sculpture and slight lateral development of the pleonites. The species is widespread in Bass Strait at intermediate depths.

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Explanation of Plate

PLATE 34. Scanning electron micrographs of mandibles and pereopod of species of Chaetiliidae (Isopoda). *Austrochaetilia capeli*: a, left mandible. *Chaetilia tasmanica*: b, tip of pereopod 7; c, left mandible. *Stegidotea pinnata*: d, right mandible. *Stegidotea scabra*: e, right mandible; f, g, left mandible.